TIN CUP DAM REPAIR

ENVIRONMENTAL ASSESSMENT

DARBY RANGER DISTRICT
BITTERROOT NATIONAL FOREST

MAY 1997

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Purpose and Need

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PURPOSE AND NEED FOR ACTION

I. INTRODUCTION

The dam is owned and operated by the Tin Cup Water Company, which was incorporated November 7, 1952. The 25-foot high by 437-foot wide earthen dam impounds 2,420 acre feet of irrigation water at normal pool level. This provides late summer irrigation water for approximately 1,300 acres.

The dam owners have applied for a USDI easement under the Ditch Bill and have included in that application an assertion that they have an outstanding right that existed prior to the proclamation of the National Forest. A decision on these easement standings has not been reached.

The facility is sited on the Bitterroot National Forest and is currently authorized with a special-use permit issued by the Forest Supervisor. The original dam construction was authorized with a special-use permit for the Tin Cup Water Users Association on August 3, 1906. File data indicates that the original structure was 300 feet long and 20 feet high and consisted of a rock fill with dry rubble masonry on the downstream face and earth fill on the upstream face.

II. LOCATION

The Tin Cup Lake Dam is located at the headwaters of Tin Cup Creek near the Montana-Idaho border, approximately 14 miles southwest of Darby, Montana. The dam is located in Township 2 North, Range 23 West, Sections 1 and 12, Principle Meridian Montana, Ravalli County. The dam and lake are in the Selway- Bitterroot Wilderness of the Bitterroot National Forest. The Wilderness was established by Congress with the Wilderness Act in 1964. Access to the site is via Forest Service Trail #96.

The project is located approximately ten miles southwest of the Tin Cup Creek Trailhead where the trail joins FS Road #639. The dam is about seven miles within the Selway-Bitterroot Wilderness (refer to maps, figures 1 and 2) The immediate area affected at the dam site is approximately two to three acres.

III. PURPOSE AND NEED FOR ACTION

The maintenance, repair, and sampling work is needed to bring the dam to a safe condition that will protect life and property, comply with federal dam safety standards, and provide and maintain irrigation water to dependent ranchers and agricultural lands. The core drilling work is needed to sample the internal composition of the dam. This will determine what additional work will be needed in 1998 to bring the dam up to safety standards.

The repair is needed to meet the requirements of the National Dam Inspection Act of 1972 (P.L. 92-367) and the Presidential Memorandum of October 4, 1979, directing federal agencies to implement the Federal Guidelines for Dam Safety of 1979.

The Forest Service requires all dam structures authorized by permit to be maintained to standards ensuring safe and satisfactory performance. Permitted dams are inspected for operation and maintenance deficiencies at frequencies related to their size and storage capacity. High hazard dams are inspected annually. Montana House Bill 382, passed in 1991, exempts nonfederal dams located on federal lands from the Montana Dam Safety Act of 1985, provided they are subject to a dam safety review by a federal agency.

The hazard potential is based on "the loss of life or property that could occur if the structure failed." The failure of the dam could affect several downstream residences and Highway 93.

Inspection reports describing the condition of the dam and outlining the need for the proposed actions are included in the Project File at the Stevensville Ranger Station. These were prepared by Druyvestein, Johnson, and Anderson (3/15/92, 3/6/97). In addition, annual inspection reports completed by the Forest Service are filed at the Stevensville Ranger Station.

IV. PROPOSED ACTION

The scope of the proposed action is limited to the Tin Cup dam site, Bitterroot National Forest. Connected actions which are also described are: trans- portation of the equipment, materials, supplies, and personnel; storage of the materials and supplies; and the occupation and supplying of the camp site for the personnel.

This is the proposal as submitted by the permittee for repairing the dam. It meets all engineering and technical compliance standards. The work listed below is required to meet federal compliance standards or is needed to determine what other repair or reconstruction work is needed in future years. Detailed technical specifications and plans have been prepared and submitted by Druyvestein, Johnson, and Anderson, Consulting Engineers. These are available for review in the Project File. The proposed reconstruction will not make any changes in water storage capacity, lake surface level, or historic water flows. Photos of the project site are available in the Project File.

The core drilling of the dam will be done to determine the repair or reconstruction needs for 1998

A. Description of Work

The primary task is the repair of the water transmission pipe that goes through the dam. Currently, the pipe is a mortar and rock composition, with a 28-foot long corrugated metal arch pipe extension on the downstream side of the dam. The metal pipe along with the entire outlet would be sleeved with 110 feet of 18" high density polyethylene plastic pipe.
Repair work includes:

1. Lower the reservoir water level.
2. Remove the existing control gate, trash rack, and walkway.
3. Pull the plastic pipe through the existing outlet pipe.
4. Fill the annular space between the new sleeve pipe and the existing stone and mortar outlet pipe with grout.
5. Install a temporary trash rack.
6. Remove shrubs and log debris from both sides of dam.
7. Pile and burn logs and shoreline debris.
8. Drill core samples along the face of dam.
9. Drill and blast a sample of rip rap from an area west of the spillway.

The core drilling is needed to determine the composition of the center of the dam. It would be completed with a small gas-powered core drill, or by soil penetration and pit samples.

Equipment that would be used for the project would include a helicopter, Bobcat backhoe, core drill, grout mixer and pump, generator, air compressor and hammer, rock drill, chain saw, two water pumps, and 200 gallons of fuel.

It is estimated that it will take two weeks to complete the work. A camp for four people and a cook will be set up near the site. After the initial set up, the camp will be resupplied by an outfitter with horses.

B. Access to Site

A helicopter will transport the heavy equipment and will fly within the Tin Cup Canyon. For smaller items and for resupplying the camp, a pack string will be used along the Tin Cup Trail.

C. Camp and Storage Area

A camp for the reconstruction crew would be located near the dam, along with a a helicopter landing area and a site for storing and staging equipment and supplies. This site would be used for the storage of up to 200 gallons of diesel fuel in 55 gallon drums. A staging and helibase would be located on private land near the mouth of the canyon. A camp management plan and a plan for air operations, safety, materials handling, and storage are a part of the proposed action (Project File).

D. Permits

The following permits will be required for the work activities:

Montana Department Fish Wildlife and Parks - 310 Permit
Montana Department of Environmental Quality - Construction Dewatering General Permit
US Army Corps of Engineers - 404 Dredge and Fill Permit

V. ORGANIZATION OF THE DOCUMENT

This project-level EA is tiered to the Bitterroot National Forest Plan and Final EIS (September, 1987), the Region One Wilderness Dam Policy (June, 1993), and the Selway-Bitterroot Wilderness General Management Direction (1992 Update). These documents provide overall guidance for land management activities on the Bitterroot National Forest. This decision will be guided by the direction provided by the National Dam Inspection Act, Federal Guidelines for Dam Safety, Wilderness Act, and Forest Service policy.

Chapter 2 describes a range of alternatives. One of these will be the "no action" alternative in which none of the proposed activities would be implemented. The three "action" alternatives will examine varying methods for achieving the purpose and need for action that are responsive to the environmental issues. Also discussed are four alternatives that were considered but not given detailed study.

Chapter 3 describes the affected environment of the project area and the condition of specific resources.

Chapter 4 discloses the expected environmental effects on the various resources for each of the alternative actions if implemented. Direct, indirect, and cumulative effects are predicted for each resource. Potential conflicts with plans and policies of this or other agencies are identified, in addition to other required disclosures.

The Appendices and Project File contain analytical reports and key-supporting information, including interaction with the public and comments received during project development. All Project Files are available for public review at the Stevensville Ranger Station.

TIN CUP LAKE DAM REPAIR
ENVIRONMENTAL ASSESSMENT

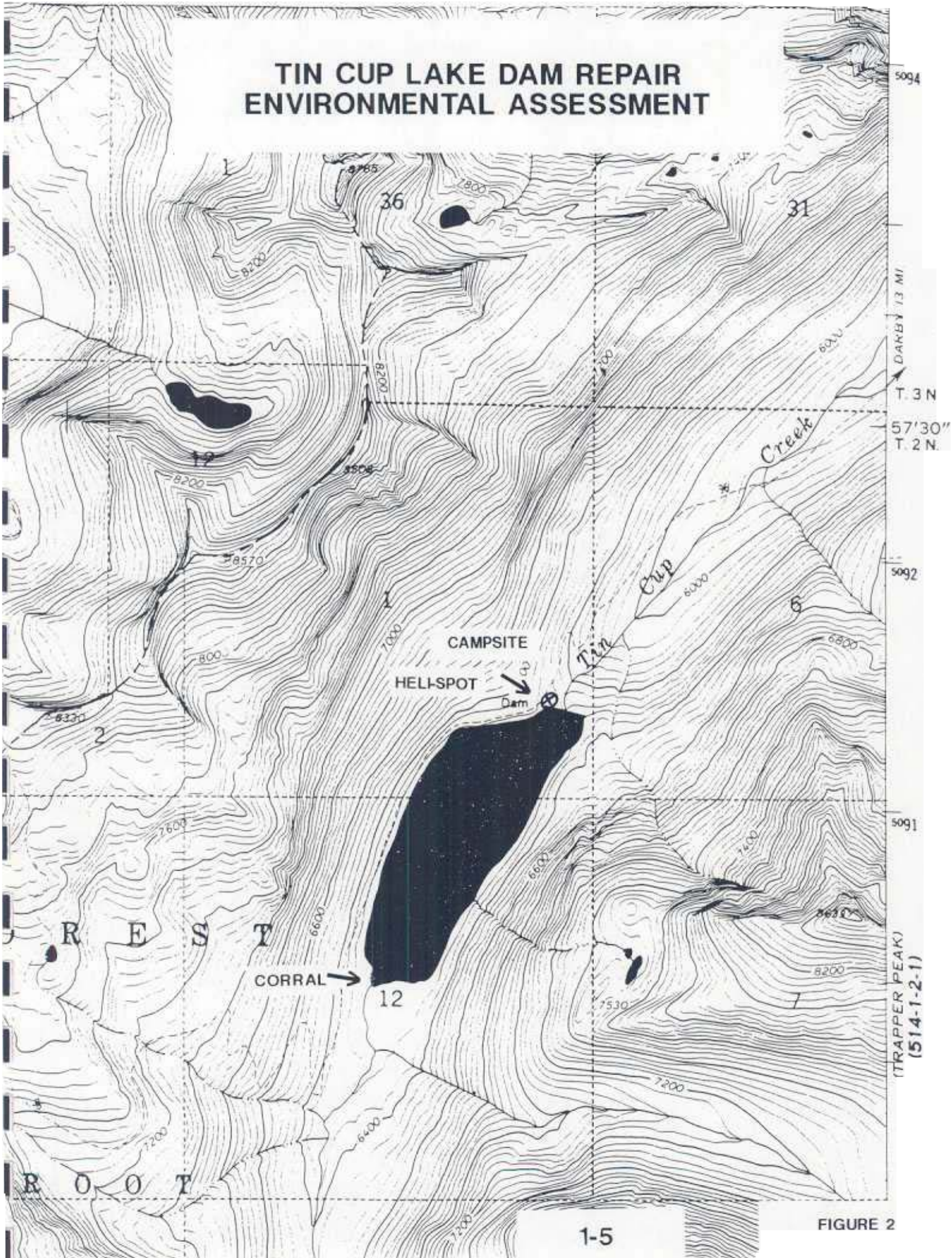

FIGURE 2

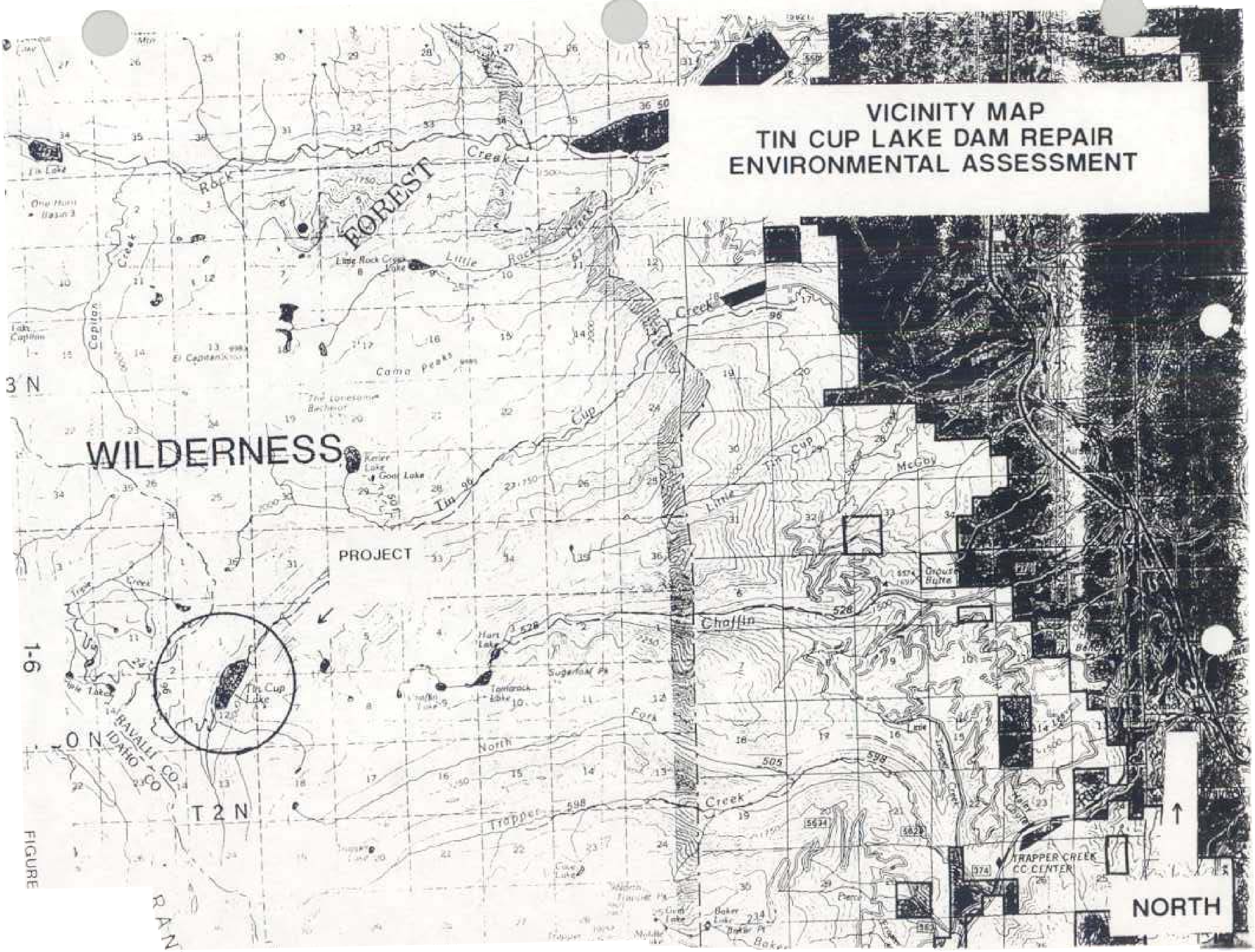
VICINITY MAP
TIN CUP LAKE DAM REPAIR
ENVIRONMENTAL ASSESSMENT
NORTH
WILDERNESS
FOREST
PROJECT
Tin Cup Lake
Rock Creek
Little Rock Creek
Tin Cup
Chaffin
North Fork
Trapper Creek
TRAPPER CREEK CC CENTER
RAVALLI CO
IDAHO CO
T 2 N
3 N
RANG

FIGURE 1-6